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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,710	01/28/2002	Mark E. Holzbach	M-8621-1D US	7765

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EXAMINER

CURTIS, CRAIG

ART UNIT PAPER NUMBER

2872

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

**Office Action Summary**

Application No.

10/058,710

Applicant(s)

HOLZBACH ET AL.

Examiner

Craig Curtis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
 Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Disposition of the Instant Application*

- This Office action is responsive to Applicants' Amendment filed on 6 December 2004, which has been made of record in the file.
- Claims 1-11 are presently pending in the instant application.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**1. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halle et al.'s *Fast Computer Graphics for Rendering Full Parallax Spatial Displays* in view of Dehmloew et al. (US 5,999,187).**

**With regard to claim 1, Halle et al.** disclose the invention as claimed: A computer-implemented method of rendering data for producing a full parallax autostereoscopic display of a digital scene (see title of article), comprising the steps of (See pp. 1-7):

defining an image plane that passes through at least a portion of said scene (see, e.g., hologram plane depicted in Fig. 1);

dividing the image plane into a plurality of contiguous image elements (*Id.*);

simulating two camera frustra on opposing sides of said image plane, each camera frustrum having an associated eyepoint (viz., the “real camera” and “conjugate camera” frustra depicted in Fig. 2; also see caption);

defining a near clipping plane of said frustra on said image plane (please see Fig. 5)

generating, for each of said elements, image data for each of said cameras (see second-to-last ¶ in § 3. FULL PARALLAX CAMERA GEOMETRY section of *Halle et al.*); and

combining said image data, thereby rendering said scene (*Id.*)--**EXCEPT FOR** explicit teachings of the following additionally recited limitations:

for each image element, determining a distance between said eyepoint and said near clipping plane that would avoid near clipping of said scene, thereby determining a set of near clipping plane distances; and

positioning said camera frustra along said z-axis in accordance with one or more of said near clipping plane distances.

**Dehmlow et al.**, however, provide a teaching of for each image element determining a distance between an eyepoint and said near clipping plane that would avoid near clipping of said scene, thereby determining a set of near clipping plane distances; and

positioning said camera frustra along said z axis in accordance with one or more of said near clipping plane distances. See 340, 348, 352, and 354 in Fig. 3; view frustrum culling step 818 (and steps 818, 820, and 822) in Fig. 8; and 914, 916, 918, 920, 922, 924, etc. in Fig. 9.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of **Halle et al.** such that the above-identified view frustrum culling steps taught by **Dehmlow et al.** be implemented, including positioning

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said camera frustra along said z axis in accordance with one or more of said near clipping plane distances (see, e.g., Dehmlow et al., column 15, lines 48-52 & 58-61), for at least the purpose of optimizing said computer-implemented method of rendering data taught by **Halle et al.**

**With regard to claims 2 & 6, the combination** explicitly discloses wherein the method is performed to produce holograms, and wherein said generating step provides holographic image data. Please see lines 4 & 5 in the CONCLUSION section of the *Halle et al.* reference.

**With regard to claim 3, the combination** explicitly teaches wherein said positioning step provides a single non-clipping plane distance for all of said elements. See, e.g., the *near plane is placed close to the camera position for both C and C\*. Both cameras are centered laterally with respect to the view aperture, but they are both shifted in depth so that their near planes coincide at the aperture plane* recitation in Section 4. CLIPPING PLANES of the *Halle et al.* reference.

**With regard to claim 4, the combination** explicitly teaches wherein said positioning step provides near clipping plane distances within a predetermined range. See, e.g., the first paragraph in Section 4. CLIPPING PLANES of the *Halle et al.* reference.

**With regard to claim 5, the combination** additionally teaches wherein the method further comprises the step of identifying degenerate elements for which said determining step will not result in avoiding clipping. See especially the *[o]bjects falling inside the gap would be clipped or disappear entirely* teaching in the last sentence of the first paragraph of Section 4. CLIPPING PLANES of the *Halle et al.* reference.

**With regard to claim 7, the combination** further teaches a step of rendering image data for said degenerate elements by repositioning said camera frustra in a direction parallel to said image plane. Please see Fig. 6 of *Halle et al.*

**With regard to claim 8, the combination** teaches a method wherein said scene is comprised of polygons, and said determining step compares z vertices of said polygons with a z distance from said clipping plane. See, e.g., Table 1 in *Halle et al.*, as well as §§ 4, 5.

**With regard to claim 9, the combination** further teaches wherein said method comprises the step of evaluating said image data for depth resolution and compensating said image data based on said evaluating step. See, e.g., § 3 in *Halle et al.*

**With regard to claims 10 and 11,** it is noted that these claims are so-called *product-by-process* claims, and even though product-by-process claims are both limited and defined by the processes recited therein, **the determination of patentability is based on the products themselves** ([a] full-parallax autostereoscopic print of a digital scene & [a] computer-readable medium whose contents cause a computer system to render image data from a full-parallax autostereoscopic display, respectively). In other words, the patentability of a product does not depend on its method of production. Indeed, if the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted). **ONCE A PRODUCT APPEARING TO BE SUBSTANTIALLY IDENTICAL IS FOUND AND A 35 U.S.C. 102 /103 REJECTION MADE, THE BURDEN SHIFTS TO THE APPLICANT TO SHOW AN UNOBVIOUS DIFFERENCE.** "The Patent Office bears a lesser burden of proof in making out a case of prima facie

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obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to Applicants to come forward with evidence establishing an unobvious difference between the claimed product(s) and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). "[T]he lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972). In the instant case, it is submitted that the images shown in Fig. 7 of *Halle et al.* meets the *full-parallax print of a digital scene*...limitation recited in the preamble of claim 10 of the instant application, whereas the storage medium of the computer relied upon by *Halle et al.* to implement the method set out hereinbefore meets the *computer-readable medium*...limitation recited in the preamble of claim 11 of the instant application.

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### **Response to Arguments**


2. Applicants' arguments filed on 6 December 2004 with respect to claims 1-11 have been considered fully but are moot in view of the new ground(s) of rejection set forth hereinbefore.

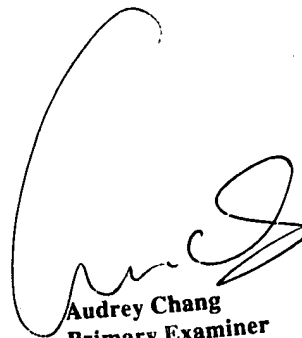
### ***Contact Information***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Curtis, whose telephone number is (571) 272-2311. The examiner can normally be reached on Monday-Friday, 9:00 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn, can be reached at (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Craig H. Curtis  
Group Art Unit  
28 February 2005

  
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